

WHAT IS CLAIMED IS:

1. A method for synchronizing a first controller with a second controller, each of the first and second controllers being adapted to remotely control one or more electronic devices, the method comprising:
 - discovering the second controller;
 - generating first controller synchronization data for synchronizing said first and second controllers; and
 - transmitting a message relating to said first controller synchronization data to the second controller.
2. The method of claim 1, wherein discovering the second controller comprises:
 - transmitting a query message; and
 - waiting a predetermined amount of time to receive a reply to said query message.
3. The method of claim 1, wherein said generating said first controller synchronization data comprises generating said first controller synchronization data in response to the execution of a command.
4. The method of claim 3, wherein said generating said first controller synchronization data in response to the execution of a command comprises:
 - generating said first controller synchronization data in response to the execution of a command that changes a configuration, status and/or operation of one of the one or more electronic devices.
5. The method of claim 3, wherein said generating said first controller synchronization data in response to the execution of a command comprises:

generating said first controller synchronization data in response to the execution of a command that changes a control configuration of the first controller.

6. The method of claim 1, wherein said generating said first controller synchronization data comprises generating said first controller synchronization data in response to a detected change in configuration, status and/or operation of at least one of the one or more electronic devices.

7. The method of claim 1, further comprising:
receiving a message relating to second controller synchronization data from the second controller; and
updating a log in response to receiving said message.

8. The method of claim 1, further comprising:
receiving a message relating to second controller synchronization data from the second controller; and
changing a control configuration of the first controller to match a control configuration of the second controller in response to receiving said message.

9. An apparatus for remotely controlling one or more electronic devices, comprising:
a network interface adapted for communication over a network;
a user interface adapted to receive user input; and
control logic coupled to said network interface and said user interface and adapted to execute commands in response to said user input;
wherein said control logic is further adapted to discover a second apparatus for controlling the one or more electronic devices communicatively coupled to said network, to generate synchronization data for synchronizing

the apparatus with said second apparatus, and to transmit a message relating to said synchronization data to said second apparatus via said network interface.

10. The apparatus of claim 9, wherein said network interface comprises a transceiver.

11. The apparatus of claim 10, wherein said transceiver is adapted for communication in accordance with an IEEE 802.3 Ethernet protocol.

12. The apparatus of claim 10, wherein said transceiver is adapted for wireless communication in accordance with a Bluetooth protocol.

13. The apparatus of claim 10, wherein said transceiver is adapted for wireless communication in accordance with an IEEE 802.11 protocol.

14. The apparatus of claim 9, wherein said control logic is adapted to discover said second apparatus by transmitting a query message via said network interface and waiting a predetermined amount of time to receive a reply to said query message.

15. The apparatus of claim 9, wherein said control logic is adapted to generate said synchronization data in response to the execution of a command.

16. The apparatus of claim 15, wherein said control logic is adapted to generate said synchronization data in response to the execution of a command that changes a configuration, status and/or operation of one of the one or more electronic devices.

17. The apparatus of claim 15, wherein said control logic is adapted to generate said synchronization data in response to the execution of a command that changes a control configuration of the apparatus.

18. The apparatus of claim 9, wherein said control logic is adapted to generate said synchronization data in response to a detected change in configuration, status and/or operation of at least one of the one or more electronic devices.

19. The apparatus of claim 9, wherein said apparatus further comprises:
a memory;
wherein said control logic is further adapted to receive a message relating to second apparatus synchronization data from said second apparatus and to update a log stored in said memory in response to receiving said message.

20. The apparatus of claim 9, wherein said control logic is further adapted to receive a message relating to second apparatus synchronization data from said second apparatus via said network interface and to change a control configuration of the apparatus to match a control configuration of said second apparatus in response to receiving said message.

21. A system, comprising:
an electronic device; and
first and second controllers communicatively coupled to said electronic device and to each other via a network, each of said first and second controllers being adapted to remotely control said electronic device via said network;
wherein said first controller is further adapted to discover said second controller, to generate first controller synchronization data for synchronizing said first and second controllers, and to transmit a message relating to said first controller synchronization data to said second controller over said network.

22. The system of claim 21, wherein said network comprises a wireless local area network.

23. The system of claim 21, wherein said first and second controllers are each communicatively coupled to said network via a respective IEEE 802.11 link.

24. The system of claim 21, wherein said first and second controllers each comprise one of a personal digital assistant or a web pad.

25. The system of claim 21, wherein said electronic device comprises one of a computer, a computer peripheral, a television, a video cassette recorder, a digital versatile disc player, a personal video recorder, a compact disc player, a stereo receiver, an electronic thermostat, a UPnP digital media renderer and/or server, a lamp, or a video camera.

26. The system of claim 21, wherein said first controller is adapted to discover said second controller by broadcasting a query message over said network and waiting a predetermined amount of time to receive a reply to said query message.

27. The system of claim 21, wherein said first controller is adapted to generate said first controller synchronization data in response to the execution of a command.

28. The system of claim 27, wherein said first controller is adapted to generate said first controller synchronization data in response to the execution of a command that changes a configuration, status and/or operation of said electronic device.

29. The system of claim 27, wherein said first controller is adapted to generate said first controller synchronization data in response to the execution of a command that changes a control configuration of said first controller.

30. The system of claim 21, wherein said first controller is adapted to generate said first controller synchronization data in response to a detected change in configuration, status and/or operation of said electronic device.

31. The system of claim 21, wherein said first controller is further adapted to receive a message relating to second controller synchronization data from said second controller over said network and to update a log in response to receiving said message.

32. The system of claim 21, wherein said first controller is further adapted to receive a message relating to second controller synchronization data from said second controller over said network and to change a control configuration of said first controller to match a control configuration of said second controller in response to receiving said message.

33. A method for synchronizing a first controller with a second controller, each of the first and second controllers being adapted to remotely control one or more electronic devices, the method comprising:

discovering the second controller;

transmitting first data to the second controller relating to one or more first controller events that have occurred since a prior synchronization; and

receiving second data from the second controller relating to one or more second controller events that have occurred since said prior synchronization.

34. The method of claim 33, wherein discovering the second controller comprises:

transmitting a query message; and
waiting a predetermined amount of time to receive a reply to said query message.

35. The method of claim 33, wherein at least one of said one or more first controller events relates to the execution of a command.

36. The method of claim 35, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a configuration, status and/or operation of one of the one or more electronic devices.

37. The method of claim 35, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a control configuration of the first controller.

38. The method of claim 33, wherein at least one of said one or more first controller events relates to a detected change in configuration, status and/or operation of one of the one or more electronic devices.

39. The method of claim 33, further comprising:
updating a log of events based on said first and second data.

40. The method of claim 39, wherein updating a log of events based on said first and second data comprises:
comparing data relating to a first controller event with data relating to a second controller event; and
if said data relating to said first controller event conflicts with said data relating to said second controller event, updating said log of events only if a timestamp associated with said first controller event is earlier than a time stamp associated with said second controller event.

41. The method of claim 33, further comprising:
changing a control configuration of the first controller to match a control configuration of the second controller based on said second data.
42. The method of claim 41, wherein said changing a control configuration of the first controller comprises:
prompting a user to confirm said changing of said control configuration of the first controller.
43. An apparatus for remotely controlling one or more electronic devices, comprising:
a network interface adapted for communication over a network;
a user interface adapted to receive user input; and
control logic coupled to said network interface and said user interface and adapted to execute commands in response to said user input;
wherein said control logic is further adapted to discover a second apparatus for controlling the one or more electronic devices communicatively coupled to said network, to transmit first data to said second apparatus relating to one or more first controller events that have occurred since a prior synchronization, and to receive second data from said second apparatus relating to one or more second controller events that have occurred since said prior synchronization.
44. The apparatus of claim 43, wherein said network interface comprises a transceiver.
45. The apparatus of claim 44, wherein said transceiver is adapted for communication in accordance with an IEEE 802.3 Ethernet protocol.

46. The apparatus of claim 44, wherein said transceiver is adapted for wireless communication in accordance with a Bluetooth protocol.

47. The apparatus of claim 44, wherein said transceiver is adapted for wireless communication in accordance with an IEEE 802.11 protocol.

48. The apparatus of claim 43, wherein said control logic is adapted to discover said second apparatus by transmitting a query message via said network interface and waiting a predetermined amount of time to receive a reply to said query message.

49. The apparatus of claim 43, wherein at least one of said one or more first controller events relates to the execution of a command.

50. The apparatus of claim 49, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a configuration, status and/or operation of one of the one or more electronic devices.

51. The apparatus of claim 49, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a control configuration of the apparatus.

52. The apparatus of claim 43, wherein at least one of said one or more first controller events relates to a detected change in configuration, status and/or operation of one of the one or more electronic devices.

53. The apparatus of claim 43, wherein said apparatus further comprises:
a memory;
wherein said control logic is further adapted to update a log of events stored in said memory based on said first and second data.

54. The apparatus of claim 53, wherein said control logic is adapted to compare data relating to a first controller event with data relating to a second controller event and, if said data relating to said first controller event conflicts with said data relating to said second controller event, to update said log of events only if a timestamp associated with said first controller event is earlier than a time stamp associated with said second controller event.

55. The apparatus of claim 43, wherein said control logic is further adapted to change a control configuration of the apparatus to match a control configuration of said second apparatus based on said second data.

56. The apparatus of claim 55, wherein said control logic is adapted to prompt a user to confirm said changing of said control configuration of the apparatus via said user interface.

57. A system, comprising:
an electronic device; and
first and second controllers communicatively coupled to said electronic device and to each other via a network, each of said first and second controllers being adapted to remotely control said electronic device via said network;

wherein said first controller is further adapted to discover said second controller, to transmit first data to said second controller relating to one or more first controller events that have occurred since a prior synchronization, and to receive second data from said second controller relating to one or more second controller events that have occurred since said prior synchronization.

58. The system of claim 57, wherein said network comprises a wireless local area network.

59. The system of claim 57, wherein said first and second controllers are each communicatively coupled to said network via a respective IEEE 802.11 link.

60. The system of claim 57, wherein said first and second controllers each comprise one of a personal digital assistant or a web pad.

61. The system of claim 57, wherein said electronic device comprises one of a computer, a computer peripheral, a television, a video cassette recorder, a digital versatile disc player, a personal video recorder, a compact disc player, a stereo receiver, an electronic thermostat, a UPnP digital media renderer and/or server, a lamp, or a video camera.

62. The system of claim 57, wherein said first controller is adapted to discover said second controller by transmitting a query message over said network and waiting a predetermined amount of time to receive a reply to said query message.

63. The system of claim 57, wherein at least one of said one or more first controller events relates to the execution of a command.

64. The system of claim 63, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a configuration, status and/or operation of said electronic device.

65. The system of claim 63, wherein said at least one of said one or more first controller events relates to the execution of a command that changes a control configuration of said first controller.

66. The system of claim 57, wherein at least one of said one or more first controller events relates to a detected change in configuration, status and/or operation of said electronic device.

67. The system of claim 57, wherein said first controller is further adapted to update a log of events based on said first and second data.

68. The system of claim 67, wherein said first controller is adapted to compare data relating to a first controller event with data relating to a second controller event and, if said data relating to said first controller event conflicts with said data relating to said second controller event, to update said log of events only if a timestamp associated with said first controller event is earlier than a time stamp associated with said second controller event.

69. The system of claim 57, wherein said first controller is further adapted to change a control configuration of the said first controller to match a control configuration of said second controller based on said second data.

70. The system of claim 69, wherein said first controller is adapted to prompt a user to confirm said changing of said control configuration of said first controller.

71. A method for migrating a controller adapted to remotely control one or more electronic devices from a stand-alone mode to a client-server mode, wherein the controller remotely controls the one or more electronic devices in accordance with a control configuration maintained by the controller in a stand-alone mode, the method comprising:

discovering a server;

transmitting data to said server relating to the control configuration maintained by the controller; and

subsequently controlling the one or more electronic devices in accordance with a control configuration maintained by said server.

72. The method of claim 71, wherein said transmitting comprises transmitting data to said server relating to one or more events that have occurred since a prior synchronization with said server.

73. The method of claim 71, wherein said transmitting comprises transmitting data to said server relating to the control configuration maintained by the controller in response to user input.

74. The method of claim 71, wherein discovering said server comprises:
transmitting a query message; and
waiting a predetermined amount of time to receive a reply to said query message.

75. An apparatus for remotely controlling one or more electronic devices, comprising:

- a network interface adapted for communication over a network;
- a user interface adapted to receive user input; and
- control logic coupled to said network interface and said user interface and adapted to execute commands in response to said user input;

wherein said control logic is further adapted to discover a server communicatively coupled to said network, to transmit data to said server relating to a control configuration maintained by the apparatus, and to subsequently control the one or more electronic devices in accordance with a control configuration maintained by said server instead of in accordance with said control configuration maintained by the apparatus.

76. The apparatus of claim 75, wherein said network interface comprises a transceiver.

77. The apparatus of claim 76, wherein said transceiver is adapted for communication in accordance with an IEEE 802.3 Ethernet protocol.
78. The apparatus of claim 76, wherein said transceiver is adapted for wireless communication in accordance with a Bluetooth protocol.
79. The apparatus of claim 76, wherein said transceiver is adapted for wireless communication in accordance with an IEEE 802.11 protocol.
80. The apparatus of claim 75, wherein said control logic is adapted to transmit data to said server relating to one or more events that have occurred since a prior synchronization with said server.
81. The apparatus of claim 75, wherein said control logic is adapted to transmit data to said server relating to a control configuration maintained by the apparatus in response to user input.
82. The apparatus of claim 75, wherein said control logic is adapted to discover said server by transmitting a query message via said network interface and waiting a predetermined amount of time to receive a reply to said query message.
83. A system, comprising:
an electronic device;
a controller communicatively coupled to said electronic device via a network, said controller adapted to remotely control said electronic device via said network; and
a server communicatively coupled to said electronic device and said controller via said network;

wherein said controller is further adapted to discover said server, to transmit data to said server relating to a control configuration maintained by said controller, and to subsequently control said electronic device in accordance with a control configuration maintained by said server instead of in accordance with said control configuration maintained by said controller.

84. The system of claim 83, wherein said network comprises a wireless local area network.

85. The system of claim 83, wherein said controller is communicatively coupled to said network via an IEEE 802.11 link.

86. The system of claim 83, wherein said controller comprises one of a personal digital assistant or a web pad.

87. The system of claim 83, wherein said electronic device comprises one of a computer, a computer peripheral, a television, a video cassette recorder, a digital versatile disc player, a personal video recorder, a compact disc player, a stereo receiver, an electronic thermostat, a UPnP digital media renderer and/or server, a lamp, or a video camera.

88. The system of claim 83, wherein said controller is adapted to transmit data to said server relating to one or more events that have occurred since a prior synchronization with said server.

89. The system of claim 83, wherein said controller is adapted to transmit data to said server relating to a control configuration maintained by said controller in response to user input

90. The system of claim 83, wherein said controller is adapted to discover said server by transmitting a query message over said network and waiting a predetermined amount of time to receive a reply to said query message.

91. A method for migrating a controller adapted to remotely control one or more electronic devices from a client-server mode, wherein the controller remotely controls the one or more electronic devices in accordance with a control configuration maintained by a server, to a stand-alone mode, the method comprising:

- receiving data from said server relating to the control configuration maintained by the server; and

- subsequently controlling the one or more electronic devices in accordance with a control configuration maintained by the controller.

92. The method of claim 91, further comprising:

- transmitting a copy of said data received from said server to a second controller.

93. An apparatus for remotely controlling one or more electronic devices, comprising:

- a network interface adapted for communication over a network;

- a user interface adapted to receive user input; and

- control logic coupled to said network interface and said user interface and adapted to execute commands in response to said user input;

- wherein said control logic is further adapted to receive data from a server communicatively coupled to said network relating to a control configuration maintained by said server, and to subsequently control the one or more electronic devices in accordance with a control configuration maintained by said apparatus instead of in accordance with said control configuration maintained by said server.

94. The apparatus of claim 93, wherein said control logic is further adapted to transmit a copy of said data received from said server to a second apparatus communicatively coupled to said network.

95. A system, comprising:
an electronic device;
a controller communicatively coupled to said electronic device via a network, said controller adapted to remotely control said electronic device via said network; and
a server communicatively coupled to said electronic device and said controller via said network;
wherein said controller is further adapted to receive data from said server relating to a control configuration maintained by said server, and to subsequently control said electronic device in accordance with a control configuration maintained by said controller instead of in accordance with said control configuration maintained by said server.

96. The system of claim 95, wherein said controller is further adapted to transmit a copy of said data received from said server to a second controller communicatively coupled to said network.